

The Emergence of *Salmonella* serotype I 4,[5],12:i:- in the FoodNet sites, 1996-2004

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Background: Although the incidence of *Salmonella* Typhimurium, the most common *Salmonella* serotype, has declined significantly in the FoodNet sites since 1996, the overall incidence of *Salmonella* has decreased only slightly. A rare *Salmonella* serotype *S.* I 4,[5],12:i:-, a variant of *S.* Typhimurium lacking expression of the second flagellar antigen, was rarely recognized before the mid-1990's, but was tracked in that National *Salmonella* Surveillance System starting in 1997. This serotype has been increasingly recognized since then. We describe the epidemiology and trends of *S.* I 4,[5],12:i:- in the FoodNet sites.

Methods: FoodNet conducted active surveillance at more than 600 clinical laboratories for laboratory-confirmed *Salmonella* infections in 10 states from 1996-2004. Poisson regression was used to estimate the change in incidence from baseline (1996-1998) to 2004.

Results: *Salmonella* serotype Typhimurium accounted for 8,557 (23%) and serotype I 4,[5],12:i:- for 574 (1.6 %) of the 36,633 serotyped *Salmonella* isolates ascertained by FoodNet between 1996 and 2004. Compared to *S.* Typhimurium cases, *S.* I 4,[5],12:i:- cases were more likely to occur in southern U.S. residents (73% versus 43% of *S.* Typhimurium cases), result in hospitalization (30% versus 26%), be isolated from blood (9% versus 5%) and occur during summer months (39% versus 32%) (all $p < .05$). The crude incidence of *S.* I 4,[5],12:i:- increased from 0.023 cases per 100,000 persons at baseline to 0.38 in 2004, while that of *S.* Typhimurium decreased from 4.05 at baseline to 2.66 in 2004. When modeled, the incidence of *S.* I 4,[5],12:i:- increased significantly (relative rate (RR)= 46, 95% confidence interval (CI)=15, 142) while that of *S.* Typhimurium decreased significantly (RR= 0.59, 95% CI=0.52, 0.66).

Conclusion: Despite certain phenotypic similarity between *S.* I 4,[5],12:i:- and *S.* Typhimurium, *S.* I 4,[5],12:i:- presented as a more severe disease with an increasing incidence compared to *S.* Typhimurium in FoodNet sites. Further studies are needed to understand the potential reasons for the reported increase. Nonetheless, these data mark the emergence of *S.* I 4,[5],12:i:- in FoodNet sites.